

Colorado Model Content Standards for Science

Science Standard 1

Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.

Science Standard 2 Physical Science: Students know and understand common properties, forms and changes in matter and energy.

- 2.1 Students know that matter has characteristic properties, which are related to its composition and structure.
- 2.2 Students know that energy appears in different forms, and can move (be transferred) and change (be transformed)
- 2.3 Students understand that interactions can produce changes in a system, although the total quantities of matter and energy remain unchanged.

Science Standard 3 Life Science: Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.

- 3.1 Students know and understand the characteristics of living things, the diversity of life, and how living things interact with each other and their environment.
- 3.2 Students know and understand interrelationships of matter and energy in living systems.
- 3.3 Students know and understand how the human body functions, factors that influence its structures and functions, and how these structures and functions compare with those of other organisms.
- 3.4 Students know and understand how organisms change over time in terms of biological evolution and genetics.

Science Standard 4 Earth and Space Science: Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space.

- 4.1 Students know and understand the composition of Earth, its history, and the natural processes that shape it.
- 4.2 Students know and understand the general characteristics of the atmosphere and fundamental processes of weather.
- 4.3 Students know major sources of water, its uses, importance, and cyclic patterns of movement through the environment.
- 4.4 Students know the structure of the solar system, composition and interactions of objects in the universe, and how space is explored.

Science Standard 5 Students know and understand interrelationships among science, technology and human activity and how they can affect the world.

Science Standard 6 Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A-All students should develop abilities to do scientific inquiry and understandings about scientific inquiry.

Abilities Necessary to do Scientific Inquiry

- Identify questions and concepts that guide scientific investigations.
- Design and conduct scientific investigations.
- Use technology and mathematics to improve investigations and communications
- Formulate and revise scientific explanations and models using logic and evidence.
- Recognize and analyze alternative explanations and models.
- Communicate and defend a scientific argument.
- Understandings about scientific inquiry.

Content Standard B-All students should develop an understanding of:

- Structure of atoms
- Structure and properties of matter
- Chemical reactions
- Motions and forces
- Conservation of energy and increase in disorder
- Interactions of energy and matter

Content Standard C-All students should develop understanding of:

- The cell
- Molecular basis of heredity
- Biological evolution
- Interdependence of Organisms
- Matter, energy, and organization in living systems
- Behavior of organisms

Content Standard D-All students should develop an understanding of:

- Energy in the earth system
- Geochemical cycles
- Origin and evolution of the earth system
- Origin and evolution of the universe

Content Standard E-All students should develop an understanding of:

- Abilities of technological design
- Understandings about science technology

Content Standard F-All students should develop an understanding of:

- Personal and community health
- Population growth
- Natural resources
- Environmental quality
- Natural and human-induced hazards
- Science and technology in local, national, and global challenges

Content Standard G-All students should develop an understanding of:

- Science as a human endeavor
- Nature of scientific knowledge
- Historical perspectives

Unit 1
The Nature of
Science

Three Hole Bottle Demo

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations.

Content Standard G

Nature of scientific knowledge

Scientific Method Worksheet

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Formulate and revise scientific explanations and models using logic and evidence

Understandings about scientific inquiry

Content Standard G

Nature of scientific knowledge

Scientific Method Today

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Understandings about scientific inquiry

Content Standard G

Science as a human endeavor

Nature of scientific knowledge

Can You Spot the Scientific Method?

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Understandings about scientific inquiry

Content Standard G

Science as a human endeavor

Nature of scientific knowledge

Performing an Experiment

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Recognize and analyze alternative explanations and models
Understandings about scientific inquiry

Content Standard G

Science as a human endeavor
Nature of scientific knowledge

Observations and Inference

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Formulate and revise scientific explanations and models using logic and evidence
Recognize and analyze alternative explanations and models.

Content Standard G

Science as a human endeavor
Nature of scientific knowledge

Fortune Teller Fish

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Design and conduct scientific investigations
Identify questions and concepts that guide scientific investigations
Formulate and revise scientific explanations and models using logic and evidence
Recognize and analyze alternative explanations and models.
Communicate and defend a scientific argument
Understanding about scientific inquiry

Content Standard G

Science as a human endeavor
Nature of scientific knowledge

Observations and Inference Quiz

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Understanding about scientific inquiry

Content Standard G

Nature of scientific knowledge

Qualitative vs. Quantitative Worksheet

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Understanding about scientific inquiry

Content Standard G

Nature of scientific knowledge

Cookie Lab

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Design and conduct scientific investigations
Understanding about scientific inquiry

Content Standard G

Nature of scientific knowledge

Unit 1 Exam

Colorado Model Content Standards

1. Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.
- 3.4 Students know and understand how organisms change over time in terms of biological evolution and genetics.
6. Students understand that science involves a particular way of knowing and understand common connections among scientific disciplines.

National Science Education Standards

Content Standard A

Identify questions and concepts that guide scientific investigations
Understanding about scientific inquiry

Content Standard C

Biological evolution

Content Standard D

Origin and evolution of the earth system

Content Standard G

Nature of scientific knowledge